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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,312	10/06/2003	Yoshitaka Sasaki	108336.01	4160

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EXAMINER

AHMED, SHAMIM

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,312

Applicant(s)

SASAKI ET AL.

Examiner

Shamim Ahmed

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/765,293.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: At the beginning of the specification, the continuing data needs to be updated such as the parent serial No. 09/765,293 filed 01/22/2001 is now US Patent 6,669,855.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claim 1, line 3 4, the phrase "being to be" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention and furthermore, "being to be" is not a positive limitation of a claim.

5. Regarding claim 1, line 7, the use of the phrase "a second magnetic layer portion extending a region" is indefinite because it is unclear what is the origin of the extending a region of the second magnetic layer.

6. Regarding claim 1, line 9, the phrase "corresponding" makes the claim indefinite because it is unclear whether the second uniform width portion is similar with the first uniform width portion or they are formed in a similar position, opposite to each other.

7. Regarding claim 1, line 14, the phrase "corresponding" makes the claim indefinite because it is unclear whether the excluded portion of the gap layer is similar with the first uniform width portion or they are formed in a similar position, opposite to each other.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (JP 411339223A) in view of Hara et al (5,946,167) and further in view of Ichihara et al (5,607,599).

In the following rejection, Sasaki (USP 6,419,845) is used as an English language equivalent of the Japanese patent (JP 411339223A).

Sasaki discloses a method of making a thin-film magnetic head, wherein a first and second magnetic layers each including a magnetic pole and magnetically coupled to each other (see abstract).

Sasaki also teach that a gap layer is disposed in between the magnetic layers (see figure 1).

Sasaki teaches that a thin-film-coil portion is disposed in region of the second magnetic layer (see figure 21A).

Sasaki further teaches that both the magnetic layers are selectively etched by ion milling and the gap layer excluding a portion underlying the first uniform width portion is selectively etched by reactive ion etching (RIE) (col.10, lines 31-33 and col.11, lines 32-43).

Sasaki fails to teach the magnetic layer is etched by reactive ion etching.

However, in a method of etching a magnetic layer, Hara et al teach that ion-milling or reactive ion etching (RIE) can be used but RIE is preferable in order to minimizing over-milling (col.7, lines 31-41).

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Hara et al's teaching into Sasaki's method because both the ion-milling and RIE are functionally equivalent to etch magnetic layer, wherein over-milling can be minimized as taught by Hara et al.

Modified Sasaki discussed above but remain silent about the etching temperature is maintained in a range of 50 to 300 degree C.

However, in a method of reactive ion etching of a magnetic material, Ichihara et al teach that the processing temperature is maintained in a range of 100 to 300 degree C for etching the magnetic material with sufficiently high etch rate (col.7, lines 29-33).

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Ichihara et al's teaching into modified Sasaki's process for efficiently etching the magnetic layer with sufficiently high etch rate as taught by Ichihara et al.

As to claims 3 and 4, Sasaki teaches that a first mask of inorganic material such as alumina (aluminum oxide) is used in the step of selective etching (col.9, lines 56-57 and col. 10, lines 6-11).

As to claims 5 - 7, Sasaki teaches that a first mask precursor layer made of the inorganic material is formed on a surface of the magnetic layer (6) by reactive ion etching and forming a second mask of photoresist (7) on a surface of the mask precursor layer (col.10, lines 21-26 and 30).

As to claims 8-10, Sasaki teaches that a pattern metal film can be formed on the surface of the mask precursor layer and used as a second mask (col.12, lines 9-22).

As to claims 12-15, Sasaki teaches the first magnetic material layer is formed by sputtering and the magnetic material comprises iron nitride (FeN), zirconium-cobalt-iron or amorphous alloy (col.9, lines 54-58 and lines 62-68).

As to claim 17, Sasaki teaches that the first magnetic layer, gap layer and the second magnetic layer are etched successively (col.13, lines 14-57, col.14, lines 9-18).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-4 and 12-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,854,175. Although the conflicting claims are not identical, they are not patentably distinct from each other because the invention recited in the patent 6,854,175 broadly encompasses the instant invention such as all of the first and second magnetic material layer and the gap layer are reactive ion etched using chlorine containing gas at the claimed range of temperature.

Conclusion


13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishiwata et al (5,938,941) disclose a process including the step of RIE of gap layer and the magnetic layers (col.5, lines 9-31).

Art Unit: 1765

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed
Primary Examiner
Art Unit 1765

SA
July 31, 2005